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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/551,143  | 04/14/2000  | Hideaki Yoshida      | 000489              | 1917             |
| 38834   | 7590        | 03/31/2006           | EXAMINER            |                  |
| WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP<br>1250 CONNECTICUT AVENUE, NW<br>SUITE 700<br>WASHINGTON, DC 20036 |             |                      | JERABEK, KELLY L    |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2622                |                  |

DATE MAILED: 03/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 09/551,143             | YOSHIDA ET AL.      |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Kelly L. Jerabek       | 2622                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 29 December 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-7 and 21-34 is/are pending in the application.
  - 4a) Of the above claim(s) 28-32 is/are withdrawn from consideration.
- 5) Claim(s) 33 and 34 is/are allowed.
- 6) Claim(s) 1-4 and 21-24 is/are rejected.
- 7) Claim(s) 5-7 and 25-27 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                     | Paper No(s)/Mail Date. _____ .  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____ .                                  |

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/29/2005 has been entered.

### **Response to Remarks:**

Applicant's arguments regarding claims 1-4, 21-24, and 33 (Amendment pages 11-12) state that since Tsuruoka teaches that the rate of appearance of the filter colors in both the vertical and horizontal directions of the array is uniform the array does not constitute a random array. The Examiner respectfully disagrees. Tsuruoka discloses in figures 12A and 12B a three-color **quasi-random** array (col. 13, line 46 – col. 14, line 13). The Examiner is reading the quasi-random array as a randomized array because it is clear that a random process is used to generate the array. Also, although Tsuruoka states that the random arrangement of pixels may be troublesome (col. 13, lines 51-52), this does not mean that Tsuruoka teaches away from generating a randomized array.

In fact, Tsuruoka states that it is desirable that the filter colors are arranged uniform in the rate of appearance and random in location because all the input signals are used to generate a reference image for restoration over a color edge mode (col. 13, lines 46-50). Furthermore, although the Tsuruoka reference states that the filter colors are uniform in the rate of appearance (col. 13, lines 46-50) this does not mean that the array is not a randomized array. **Although the rate of appearance of the filter colors is uniform the location is random (col. 13, lines 46-50) and therefore the array is being read as a randomized array.**

Claim 33 discloses “wherein said three-colored separation filter has a random three-colored arrangement satisfying minimum color density conditions **but having no regularity** and directly picks up the color image”. Thus, claim 33 cannot be rejected using the Tsuruoka reference because the reference states that the filter colors are uniform in the rate of appearance.

**Claims 1-4 and 21-24 rejected under 35 U.S.C. 102(e) as being anticipated by Tsuruoka et al. US 6,343,146.**

Re claim 1, Tsuruoka discloses in figure 11 an image signal processor including a random color filter array. The signal processor includes a single sensor color image

pickup device (501) consisting of a pixel group placed in an array of a plurality of pixels for picking up a color image. Tsuruoka also discloses a color coding array that directly picks up a color image corresponding to the pixel group arranged in a randomized array satisfying predetermined minimum color density conditions and wherein each of the colors of the array are not mixed (col. 13, line 45 – col. 14, line 11; figs. 12A, 12B). The array disclosed by Tsuruoka is a three-color quasi-random array (col. 13, line 46 – col. 14, line 13). The Examiner is reading the quasi-random array as a randomized array because it is clear that a random process is used to generate the array. Although the rate of appearance of the filter colors is uniform the location is random (col. 13, lines 46-50) and therefore the array is being read as a randomized array.

Re claim 2, the 3-colored coding array includes a color filter (figs. 12A, 12B).

Re claim 3, Tsuruoka discloses in figure 11 an image signal processor including a random color filter array. The signal processor includes a single sensor color image pickup device (501) consisting of a pixel group placed in an array of a plurality of pixels for picking up a color image. Tsuruoka also discloses a color coding array that directly picks up a color image corresponding to the pixel group arranged in a randomized array satisfying predetermined minimum color density conditions wherein each of the colors of the array are not mixed (col. 13, line 45 – col. 14, line 11; figs. 12A, 12B). Although the rate of appearance of the filter colors is uniform the location is random (col. 13, lines 46-50) and therefore the array is being read as a randomized array. Additionally, Tsuruoka

discloses a color separation means for performing color separation processing of output signals in accordance with the random color coding array (col. 14, lines 14-30).

Re claim 4, the color coding array includes a color filter (figs. 12A, 12B).

Re claim 21, see claim 1.

Re claim 22, see claim 2.

Re claim 23, see claim 3.

Re claim 24, see claim 4.

***Allowable Subject Matter***

**Claims 5-7 and 25-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

Re claims 5-7 and 25-27, the prior art fails to teach or suggest, "A single sensor color image pickup apparatus for picking up a color image, comprising: a color image pickup device having a pixel group placed in an array of a plurality of pixels of

photoelectric conversion elements and a three-colored coding array corresponding to the pixel group, arranged in a randomized array satisfying predetermined minimum color density conditions; the three-colored coding array arranged in the randomized array directly picks up the color image; and three-colored separation means for performing color separation processing of output signals of the color image pickup device in accordance with the random three-colored coding array of the color image pickup device, **wherein each of the colors of the three-colored coding array are not mixed and further comprising storage means for storing array data concerning the random three-colored coding array of said color image pickup device, for performing color separation processing at said three-colored separation means".**

**Claims 33 and 34 are allowed.**

The following is an examiner's statement of reasons for allowance:

Re claims 33 and 34, the prior art fails to teach or suggest, "A single sensor color image pickup device comprising: a pixel array having two-dimensionally arranged pixels, for effecting photoelectric conversion of an incident optical image; and a three-colored separation filter for guiding the incident optical image to each pixel of said pixel array in a manner separated into a plurality of primary colors; wherein said three-colored separation filter has a **random three-colored arrangement satisfying minimum color density conditions but having no regularity** and directly picks up the

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color image, wherein each of the colors of the three-colored coding array are not mixed".

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Contacts***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kelly L. Jerabek whose telephone number is (571) 272-7312. The examiner can normally be reached on Monday - Friday (8:00 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for submitting all Official communications is (703) 872-9306. The fax phone number for submitting informal communications such as drafts, proposed amendments, etc., may be faxed directly to the Examiner at (571) 273-7312.

**Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through**

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KLJ



DAVID OMETZ  
SUPERVISORY PATENT EXAMINER